

WHAT IS CLAIMED IS:

## 1. An apparatus comprising:

coin-counting means for determining a total amount of

5 said coins;

means for receiving a plurality of coins of arbitrary denomination from a user, said means for receiving including a first tray pivotable from a first holding position to a second delivery position for delivering said plurality of coins to

10 said coin-sorting means;

means, coupled to said means for receiving, for removing waste included among said plurality of coins;

means, coupled to said coin-counting means, for dispensing a cash voucher for a value related to said total

15 amount.

## 2. Apparatus, as claimed in claim 1, wherein said

means for receiving comprises a transport tray for conveying coins from said first tray toward said coin-counting means.

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3. Apparatus, as claimed in claim 2, wherein said transport tray includes a plurality of holes for removing waste material.

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4. Apparatus, as claimed in claim 3, wherein at least some of said holes are tapered in a direction toward said first tray.

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5. Apparatus, as claimed in claim 2, wherein said first tray is pivotable about an axis located between said first tray and said transport tray.

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6. Apparatus, as claimed in claim 5, wherein each of said coins is substantially planar and wherein the plane of each coin, when traveling from said first tray to said transport tray, remains substantially perpendicular to an imaginary plane normal to said axis.

7. Apparatus, as claimed in claim 5, wherein said first tray has a bottom surface and wherein said bottom surface of said first tray, when in said first configuration, slopes downwardly at a first angle, with respect to 5 horizontal, in a direction away from said transport tray.

8. Apparatus, as claimed in claim 7, wherein said first angle is between about 11° and about 12°.

10 9. Apparatus, as claimed in claim 1, further comprising control and I/O means for receiving user input and, in response, controlling at least said coin-counting means.

15 10. Apparatus, as claimed in claim 9, wherein said control and I/O means includes a computer.

11. Apparatus, as claimed in claim 10, further comprising a modem, coupled to said computer, for transmitting data to and from said computer.

20 12. Apparatus, as claimed in claim 9, further comprising a gate means, movable under control of said control and I/O means, for controlling flow of coins to said coin-counting means.

25 13. Apparatus, as claimed in claim 1, wherein said means for removing waste includes at least a first fan configured to cause a flow of air in a direction away from said coin-counting means and toward said means for receiving.

30 14. Apparatus, as claimed in claim 5, wherein said means for removing waste includes a means for causing a flow of air above said axis so as to flow over coins which pass over said axis.

35 15. Apparatus, as claimed in claim 14, further comprising means for causing a convergence of said flow of air prior to passage over said axis.

16. Apparatus, as claimed in claim 1, wherein said means for removing waste includes at least a first magnet positioned between said means for receiving and said coin-counting means, wherein substantially all coins are exposed to the field of said magnet while traveling from said means for receiving to said coin-counting means without being blocked by other coins.

17. Apparatus, as claimed in claim 1, further comprising coin-sorting means for depositing different denominations of said coins into different containers.

18. Apparatus, as claimed in claim 17, wherein said containers comprise standard-sized coin bags.

19. Apparatus, as claimed in claim 17, further comprising at least one removable trolley for holding a plurality of said containers.

20. Apparatus, as claimed in claim 19, wherein said trolley includes tapered bag receptacles.

21. Apparatus, as claimed in claim 1, further comprising means for supplying power from an ordinary AC power supply.

22. Apparatus, as claimed in claim 21, further comprising means for providing power to said apparatus for at least a minimum amount of time following a failure of said ordinary AC power supply.

23. Apparatus, as claimed in claim 1, further comprising means for dispensing a plurality of coupons.

24. Apparatus, as claimed in claim 23, wherein said means for dispensing coupons is capable of operating independently from said means for dispensing a cash voucher.

25. Apparatus, as claimed in claim 1, wherein said coin-counting means, said means for receiving, said means for removing waste and said means for dispensing a cash voucher are positioned in a doored cabinet.

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26. Apparatus, as claimed in claim 25, wherein said cabinet is provided in the absence of bracing members positioned so as to obstruct access to said coin-counting means when the doors of said doored cabinet are open.

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27. Apparatus, as claimed in claim 25, wherein at least said coin-counting means is mounted in said cabinet on rails to permit at least partial withdrawal therefrom.

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28. An apparatus comprising:

a cabinet;

a first tray, pivotally mounted with respect to said cabinet, configured to receive a plurality of coins, said first tray movable from a first holding position to a second position for moving said coins out of said first tray;

a transfer tray for receiving coins moved out of said first tray and guiding said coins to a coin-counting mechanism;

at least a first fan for blowing debris off said coins before said coins enter said coin-counting mechanism; and a voucher dispenser for dispensing a cash voucher for a value related to the value of said coins counted by said coin-counting mechanism.

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29. A method for dispensing a cash voucher, comprising:

providing a first tray, having a bottom surface, configured to receive a plurality of coins, said first tray positionable in a first holding position wherein said bottom surface defines a first angle with respect to horizontal;

moving said first tray from said first holding position through an intermediate position to a second position for moving said coins out of said first tray, said bottom

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surface, in said intermediate position, defining a second angle with respect to horizontal, which is shallower than said first angle;

removing debris from said plurality of coins;

5 transferring said coins to a coin-counting mechanism; determining a total value of said coins, using said coin-counting mechanism;

providing a controllable voucher dispenser;

10 providing a computer, coupled to said coin-counting mechanism and to said controllable voucher dispenser;

transmitting an indication of said total value from said coin-counting mechanism to said computer;

15 transmitting a command sequence from said computer to said controllable voucher dispenser to cause said voucher dispenser to dispense a cash voucher for a value related to said total amount.

30. A method, as claimed in claim 29, further comprising providing a communications line coupled to said computer;

31. A method, as claimed in claim 30, further comprising transmitting data and programming to said computer, using said communications line.

25 32. A method for automatic counting of coins utilizing remote locations which can be coupled to a central location, the method comprising:

providing a central computer facility;

30 providing a plurality of automatic coin-counting devices, each coin-counting device including a communications facility which can electronically communicate with said central computer facility;

35 receiving and counting coins in each of said plurality of automatic coin-counting devices to obtain at least a first total of said coins; and

transmitting information relating to said first total, from each of said plurality of automatic coin-counting

devices, to said central computer facility, using said communications facility.

33. A method, as claimed in claim 32, further  
5 comprising outputting at least a first voucher, at each of  
said plurality of automatic coin-counting devices, said  
voucher for an amount related to an amount of coins counted.

34. A method, as claimed in claim 33, wherein said  
10 step of outputting comprises printing a voucher using a first  
printer.

35. A method, as claimed in claim 34, further  
comprising printing a document, separate from said voucher,  
15 related to said first total, using said first printer.

36. A method, as claimed in claim 35, wherein said  
document comprises at least one of  
a bank deposit slip;  
20 a coin bag tag;  
an armored car carrier receipt.

37. A method, as claimed in claim 33 wherein said  
voucher includes an identifier number.

25 38. A method, as claimed in claim 37, further  
comprising transmitting at least one voucher identifier number  
to said central computing facility, using said communications  
facility.

30 39. A method, as claimed in claim 32, further  
comprising:

determining, in each of said plurality of coin-  
counting devices, additional information, said additional  
35 information including at least one of  
the number of each denomination of said coins  
the time of each counting step; and

transmitting said additional information to said central computing facility, using said communications facility.

5 40. A method, as claimed in claim 32, further comprising storing said first total in a memory in each of said plurality of coin-counting devices, prior to transmitting to said central computing facility.

10 41. A method, as claimed in claim 40, wherein said memory is non-volatile memory.

42. A method for coin access control in a coin-counting device, the method comprising:

15 providing a lock, restricting access to counted coins in said coin-counting device;  
detecting the opening of said lock; and  
recording the time of opening of said lock.

20 43. A method, as claimed in claim 42, further comprising:  
receiving input of identity information identifying the entity opening said lock;  
recording said identity information in said memory.

25 44. A method, as claimed in claim 42, further comprising:

receiving a password;  
comparing said password to a list of acceptable  
30 passwords and preventing the opening of said lock and requesting another entry of a password, until an entered password matches a password in said list of acceptable passwords.

35 45. A method, as claimed in claim 42, further comprising transmitting said time of opening said lock to a central computing facility.